EXISTING CONDITIONS

This section of the Statement of Need and Purpose document outlines the information used in the assessment of the purpose and need for possible improvements to the SR 9 corridor. Included is a description of the study area, including the major roadways, land use, and environmental conditions, the performance of the existing roadway system, including present and future traffic volumes, and a summary and discussion of other projects and / or studies which may have an impact on the formation of the need and purpose statement.

STUDY AREA LOCATION

SR 9 traverses the state from its southern terminus at SR 46, east of Columbus to the Indiana-Michigan border in LaGrange County for a total length of 195 miles. For most of this length, the roadway is classified in INDOT's Long Range Plan (2000 -2025) as a *Regional Corridor*. A *Regional Corridor* is the middle tier of the highway system and is meant to provide mobility within regions of the state. These facilities are meant to provide safe, intermediate speed connections. Typically, medium distance trips are served along these moderate speed facilities.

The area of SR 9 from US 52 to SR 234, representing the Greater Greenfield area, will serve as the subject of this study.

(The initial scope of the study is limited to addressing possible improvements along SR 9 in and around the City of Greenfield and will serve as the basis for establishing the limits of the study. Regional mobility issues beyond the effective influence of the city along the corridor, such as movements north toward Anderson, or south toward Shelbyville, are considered peripheral to this study, and may be considered as part of a separate study at a later date.)

PHYSICAL ROADWAY SYSTEM / SYSTEM LINKAGE

The study area is served by several levels of roadways, including Interstate, US, State, and Local roadways. SR 9 serves as the primary north-south roadway, through the study area, while US 52, US 40, I-70, and SR 234 serve east-west movement through the area.

SR 9

SR 9 through the study area is a 14.5 mile section of roadway. From the southern terminus of the study area at US 52, north through US 40 to

McKenzie Road (CR 100N), a length of approximately seven miles, SR 9 is a two lane roadway. From McKenzie Road, north to I-70, a distance of 1 ½ miles, SR 9 widens to a five lane section, consisting of two travel lanes in each direction with a two way left turn lane. The final 5 ½ miles of SR 9, north of I-70 to SR 234 is again a two lane roadway. Intermittent dedicated left and right turn lanes exist at major intersections. Ten signalized intersections exist within the corridor, all located between US 40 and I-70.

Speed limits along the corridor are generally between 30 and 45 mph from CR 100S, north through the limits of Greenfield to I-70. North and south of this area the speed limit is 55 mph.

Major roadways which cross SR 9 through the study area and affect its overall operation include (listed from north to south):

SR 234
SR 234 is a regional two lane, east west *Rural Major Collector* extending from McCordsville to New Castle and forms the northern boundary of the study area. This facility generally carries approximately 2,500 AADT

I-70
Interstate 70 through the study area is a four lane, east-west divided freeway traversing the entire state and nationally extending from Maryland to Utah. I-70 is on the National Highway System and the National Truck Network. Traffic volumes along I-70 near SR 9 are near 47,000 AADT.

US 40
US 40, through the study area, transitions from west to east as an east-west *Urban/Rural Principal Arterial* to an *Urban / Rural Major Collector* The roadway extends through the entire width of the state and nationally from Maryland to Utah. US 40 is not on the National Highway System, but is on the National Truck Network. US 40 is a National Scenic Byway and carries 14,000 vehicles per day in the study area

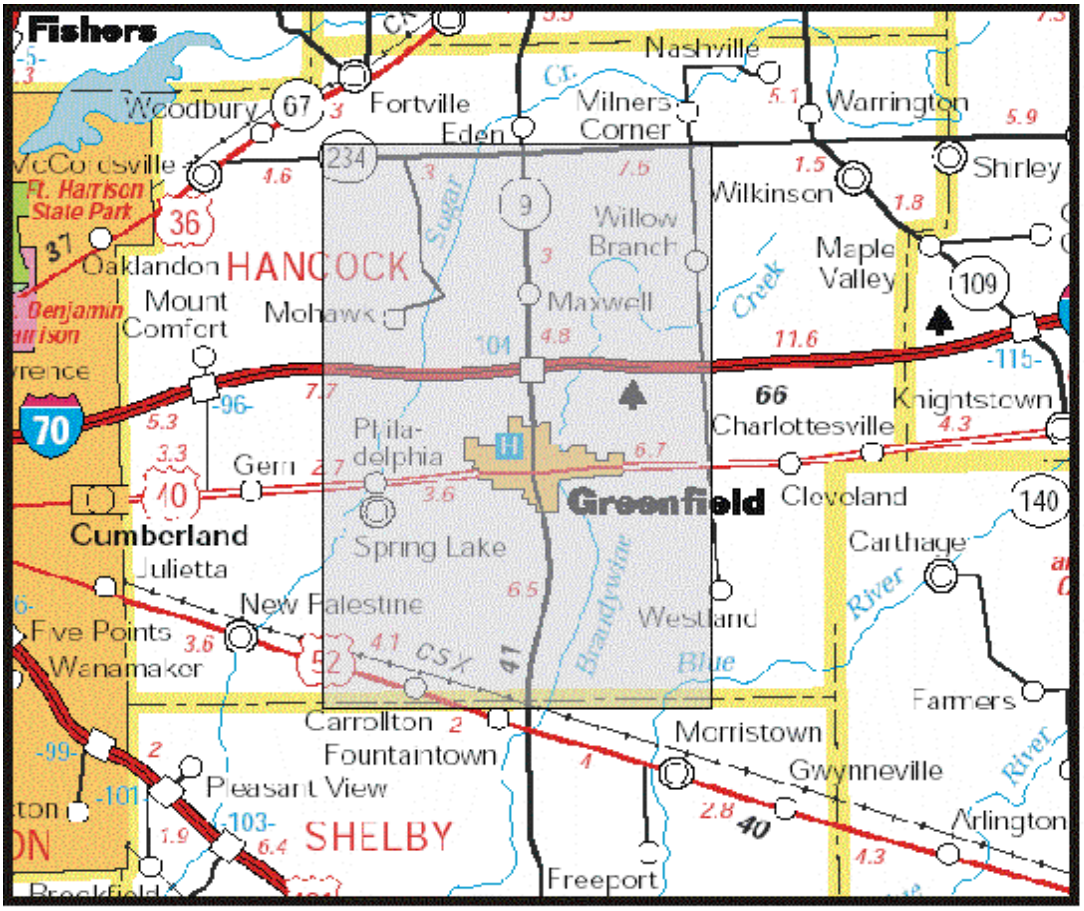

FIGURE 1 – PROJECT LOCATION MAP

US 52

US 52 is a northwest-southeast roadway classified in the area as a *Rural Minor Arterial*. US 52 traverses the state from Dearborn County to Benton County and extends nationally from Charleston, South Carolina to Minneapolis, Minnesota. It is not on the National Highway System, but is on the National Truck Network. US 52 carries approximately 6,500 vehicles per day at its intersection with SR 9 and forms the southern boundary of the study area.

System Performance and Operation

Traffic Capacity and Demand

Existing (base year) traffic counts along SR 9 within the study area vary. Traffic counts taken by INDOT in 1999 reveal volumes ranging from between 7,500 and 8,000 vehicles per day at the north and south ends of the corridor. Traffic volumes peak to just over 26,000 vehicles per day near I-70. The existing corridor was separated into ten sections for detailed service analysis.

Table 1: Existing SR 9 Traffic Volumes

Segment	1999 Traffic Volume (AADT)	LOS
CR 600N – SR 234	7,790	C
CR 500N – CR 600N	9,680	C
CR 300N – CR 500N	10,420	C
I-70 – CR 300N	15,240	D
New Road – I-70	26,150	C
McKenzie Road – New Road	19,390	B
US 40 – McKenzie Road	17,110	D
Osage Street – US 40	14,180	E
CR 100S – Osage Street	11,020	D
CR 300S – CR 100S	8,120	C
US 52 – CR 300S	7,530	C

Note: Green shaded areas are within the Greenfield City limits.
Red shaded areas represent unacceptable Levels of Service (LOS)

The quality of traffic flow along the corridor was determined by examining the Level of Service (LOS) along several sections of the roadway. Roadway service is measured along a scale of A through F. An LOS of "A" represents an ability to maintain the posted speed, freely make all required movements, (passing, lane changes, etc.), and generally represents very good service. An LOS of "F" represents a complete breakdown of the highway system, such as in a stop and go condition. A Level of Service of "E" represents the point at which the roadway's volume roughly equals its capacity. INDOT standards identify an LOS of C and D as the minimum acceptable levels of service for a rural and urban corridor, respectively, such as SR 9.

Unacceptable LOS is currently being experienced along SR 9 in the one-quarter mile section between US 40 and Osage Street, demonstrated in Table 1.

Future (design year) traffic volumes were forecasted for along SR 9 for the year 2025.

Table 2: Future SR 9 Traffic Volumes

Segment	2025 Traffic Volume (AADT)	LOS
CR 600N – SR 234	13,050	D
CR 500N – CR 600N	16,210	D
CR 300N – CR 500N	17,450	D
I-70 – CR 300N	25,530	E
New Road – I-70	43,800	C
McKenzie Road – New Road	32,480	B
US 40 – McKenzie Road	28,660	E
Osage Street – US 40	23,750	F
CR 100S – Osage Street	18,460	E
CR 300S – CR 100S	13,600	D
US 52 – CR 300S	12,610	D

Note: Green shaded areas are within the Greenfield City limits.
Red shaded areas represent unacceptable Levels of Service (LOS)

The LOS along SR 9 is anticipated to deteriorate in the future (2025) based on projected traffic volumes. Service levels which are unacceptable or approaching unacceptable are anticipated through most of the corridor, primarily in the two lane areas along SR 9 north and south of the current five lane section of roadway within the limits of Greenfield.

Major intersections within the corridor between US 40 and I-70 were also analyzed for their performance. An analysis of these isolated areas is helpful in identifying operational issues within the corridor.

Table 3 – Intersection Level of Service

Location	***1999 LOS***	***2025 LOS***
SR 9 at US 40	**C**	**F**
SR 9 at McKenzie Road	**D**	**F**
SR 9 at McClarnon Drive	**A**	**B**
SR 9 at New Road	**C**	**F**
SR 9 at I-70	**B**	**C**

All major intersections are currently operating at acceptable levels of service. (It should be noted that the substandard intersection geometric elements, such as turning radius, are having an additional adverse affect on the current service levels, This affect is not reflected in the above chart. Improvements to the substandard elements may in some cases improve the LOS beyond the levels shown above. The quantitative increase in service levels will be contingent on the specific improvement made and the particular location of the improvement.)

Based upon future traffic projections, the intersections with US 40, McKenzie Road, and New Road will be at failure levels, with a projected LOS of “F”.

TRAVEL MARKET

In order to evaluate the current users of SR 9, or its travel market, an origin-destination (OD) study was performed. (A summary of the methodology and subsequent results of the OD study is presented here. For a more in-depth discussion of the study and its results, refer to Appendix A of the report.) An OD study attempts to reveal from where (origin) and to where (destination) individual vehicles are traveling.

Based on traffic volumes taken as a part of the OD study, the average daily heavy vehicle volume entering or leaving the study area through the designated stations is approximately 4,500 vehicles. Based on the results of the study, on a daily basis, an average of 918 heavy vehicles, or approximately 20%, are making through movements through the entire study area. This indicates that 80% of the heavy vehicles entering or exiting the system have either originated in or are destined for points within the study area.

The results also reveal that of those 918 through movements, only 277 (1D – 123, 4A-154) can be classified as through trips in which the vehicle both entered and exited the system on SR 9. This value represents approximately 30% of the total through trips or only 6% of all heavy vehicle traffic in the area.

An analysis of passenger vehicle volumes displayed similar travel pattern results.

SAFETY

Traffic accidents (crashes) represent a risk to human safety. Accidents also involve a financial liability to the public through damage to private and public property and lost time from subsequent delays. Safety deficiencies can be analyzed through a study of accident rates at a particular location or through a particular area. High accidents rates can adversely affect the efficiency of a particular transportation system.

Data was compiled from INDOT's Program Development Unit and an independent study prepared in 1999 by the Greenfield Police Department. A study of accident data along SR 9 from US 52 to SR 234 between the years of 1997 to 1999, revealed a total of 726 crashes occurring in the study area. These 726 crashes involved 1,443 vehicles, 379 injuries, and 4 fatalities over the three year period. This indicates an annual average of 242 crashes involving 481 vehicles, 126.3 injuries, and 1.3 fatalities per year.

The corridor exhibits both rural and urban characteristics, which yield varying typical and actual accident data. Roadway speed, geometry, traffic volumes, and traffic composition all contribute to the difference in accident results. For the purpose of analysis, those areas within the limits of the City of Greenfield, roughly from I-70 south to approximately CR 200S, are considered urban in nature.

Table 5: Accident Data along SR 9 (1997-1999)			
Year	**Accidents involving Prop. Damage (Veh. Involved)**	**Accidents involving Injury (No. of Injuries)**	**Accidents involving Fatalities (No. of Fatalities)**
1997	260 (511)	59 (106)	1 (1)
1998	227 (451)	77 (115)	0 (0)
1999	239 (481)	89 (158)	2 (3)
Total	726 (1443)	225 (379)	3 (4)
Annual Average	242 (481)	75.0 (126.3)	1.0 (1.3)

Table 6 – Accident Data- SR 9 from US 52 to SR 234 Average Annual Data (1997-1999)							
	Accidents Involving Prop. Damage		**Accidents involving Injuries**		**Accidents Involving Fatalities**		**Veh. Miles Traveled**
	Statewide Rate	SR 9 Rate	Statewide Rate	SR 9 Rate	Statewide Rate	SR 9 Rate	
Rural	199	197	50	39.5	2.0	2.6	*38,000,000*
Urban	417	709	93.5	333	0.7	0	*18,000,000*
Total	251	432	64	133.9	1.6	1.8	*56,000,000*

Note: Statewide Rate = Typical Statewide Annual Rates for Arterial Roadways (per 100 million vehicle miles traveled)

Shaded boxes indicate values exceeding statewide averages

Referring to Table 6, for the three year period from 1997 to 1999, the urban portions of SR 9 experienced higher than average annual property damage and injury rates, as compared to the values across the state. The rural accident and injury rates were lower along this segment of SR 9 than the statewide rate. (Due to the low number of “data” points, a true assessment of the fatality rate is not possible with any statistical certainty.)

LAND USE / SOCIO-ECONOMIC - ENVIRONMENTAL PROFILES

The section of the SR 9 corridor under study generally is almost entirely within the limits of Hancock County and encompasses the entire City of Greenfield.

Greenfield was incorporated as a city and began serving as the Hancock County Seat in 1828. The city currently has approximately 14,600 residents, a 25% increase from the 1990 census.

Development of the city has expanded outward from its central business district centered around the intersection of US 40 and SR 9. Land use in this area is primarily high density commercial and residential, with existing hindering restricting further expansion of the roadways in the area.

The completion of I-70, approximately 2 ½ half miles north of US 40, encouraged growth in Greenfield to gravitate to the north. Many manufacturing and industrial related facilities are now located near this major transportation facility. Between the I-70 corridor and the downtown central business district, numerous strip malls and retail developments have been built.

Outside the limits of Greenfield, SR 9 runs through a primarily rural area, characterized by large tracts of agricultural land and rural residential neighborhoods. Over the past five years, residential subdivisions have begun to develop just south of the city along SR 9.

North of the city, within the limits of the study, SR 9 runs through the small town of Maxwell. Several subdivisions are slated for development along the north leg of SR 9, but land use is primarily agricultural.

PREVIOUS STUDIES / STUDY HISTORY

The City of Greenfield has previously requested assistance from INDOT to improve the SR 9 transportation corridor between I-74 and I-69. Most recently, in late 1997, a request was submitted to INDOT by then Greenfield Mayor Patricia Elmore to fund a bypass around the city, “to ensure the degree of congestion which has occurred in other fringe areas of the Indianapolis region does not occur [in Greenfield]”

Previous to this request, other requests had been made dating back to the 1970’s, though a formal investigation of the merits for improvement had never been completed.

A more formalized report was prepared by a consultant for the City of Greenfield for Congressman Dan Burton's office in 1997. This report described the City's perception of SR 9 as a route carrying vehicles which were using the roadway as a means of travel from Shelbyville to Anderson, bottlenecking in Greenfield, and restraining the economic health of downtown Greenfield. The City proposed a bypass be constructed around Greenfield to alleviate the congestion caused by these vehicles using SR 9 for regional purposes. The proposed $21,300,000 bypass would begin near CR 300S, continue across I-70 and connect back to existing SR 9 at CR 400N.

In response to the 1997 study, and the subsequent congressional mandate, the subject of this current study was initiated as outlined in the 1998 TEA-21 legislation, Section 1602 Program for High Priority Demonstration Projects, under the item of "Construct a SR 9 Bypass in Greenfield". FHWA and INDOT have responded by investigating the need and purpose of any local improvements to SR 9 in the area of Greenfield only. The scope of the study is limited to local improvements, and will not involve a larger regional mobility study of east-central Indiana.

COMMUNITY /PUBLIC INPUT

A Citizens' Advisory Committee (CAC) was established at the beginning of the study to bring together those local groups which would like to be an active participant in the study. This dynamic group is made of representatives from local government, education, business, healthcare, homeowners, and historical groups. Two formal meetings and numerous one-on-one meetings were held with these groups to elicit comment and input into the formation of the need and purpose. A public meeting was also held to elicit additional information regarding the study or the community in general.

Opinions generally varied greatly through the public involvement process. Generally, the public and community expressed concern with the safety and congestion problems along SR 9. The perception is that the heavy trucks in the traffic stream are the cause. Considerable merit was placed on the lack of other quality north south corridors through the area as a potential deficies in the area's transportation system. Opinion varied on possible solutions, from local roadway solutions, to spot improvements along the existing SR 9 corridor, to entire new roadways to bypass the city